

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

REDDY ET AL.

Serial No.: **10/759,678**

Filed: **JANUARY 16, 2004**

Title: **"SETTABLE FLUIDS COMPRISING
PARTICLE-SIZE DISTRIBUTION-
ADJUSTING AGENTS AND METHODS
OF USE"**

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Group Art Unit: **1755**

Confirmation No.: **8611**

Examiner: **PAUL D. MARCANTONI**

Atty. Docket No: **HES 2003-IP-011937U1**

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APPELLANTS' BRIEF PURSUANT TO 37 C.F.R. § 41.37

This brief is submitted in support of Appellants' Notice of Appeal from the rejections in the Final Office Action dated July 10, 2008 (the "Final Office Action"), the Advisory Action dated October 1, 2008 (the "Advisory Action"), and the Notice of Panel Decision from Pre-Appeal Brief Review dated January 14, 2009.

Pursuant to the Notice of Panel Decision from Pre-Appeal Brief Review dated January 14, 2009, the shortened statutory period for filing this Appeal Brief is one month from

the mailing of that decision, and thus ends on February 14, 2009. Therefore, this Appeal Brief is timely filed.

I. STATEMENT OF THE REAL PARTY IN INTEREST

The real party in interest is:

Halliburton Energy Services, Inc.

10200 Bellaire Blvd.

Houston, Texas 77072

by virtue of assignment by the inventor as duly recorded in the Assignment Branch of the U.S. Patent and Trademark Office.

II. STATEMENT OF RELATED CASES

There are no related appeals or interferences, to Appellants' knowledge.

III. STATUS OF THE CLAIMS

The application as originally filed contained 122 claims. Claims 123-191 were previously added. Claims 13, 29, 40-122, 135, 171 were previously canceled. Claims 1-12, 14-28, 30-39, 123-134, 136-170, and 172-191 are finally rejected and appealed. A listing of all appealed claims is provided in Appendix A in this Appeal Brief.

VI. STATUS OF AMENDMENTS

No amendments have been filed subsequent to the final rejection by the Examiner.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

The application contains three independent claims, namely claims 1, 123, and 159, which are the subject of this Appeal. The subject matter of these claims is summarized below.

With regard to aspects of the invention set forth in independent claim 1, discussion of the recited features of claim 1 can be found at least in the below cited locations of the specification. By way of example, certain embodiments of the present invention are directed to a method of cementing. (*See, e.g.*, Spec ¶ [0023] - [0024].) The method of cementing includes providing a cement composition comprising a hydraulic cement, a set retarder, water, and a particle-size distribution agent that comprises a cationic polymer. (*See, e.g.*, Spec ¶ [0024] - [0028].) The method of cementing further includes permitting the cement composition to remain in a slurry state for a period of time prior to the cement composition being activated. (*See, e.g.*, Spec ¶ [0038].) The method of cementing further includes activating the cement composition wherein activating the cement composition comprises adding an activator composition to the cement composition. (*See, e.g.*, Spec ¶ [0033] -[0035].) The method of cementing further includes placing the cement composition in a subterranean formation penetrated by a well bore. (*See, e.g.*, Spec ¶ [0036] -[0037].) The method of cementing further includes permitting the cement composition to set in the subterranean formation. (*See, e.g.*, Spec ¶ [0036] -[0037].)

With regard to aspects of the invention set forth in independent claim 123, discussion of the recited features of claim 1 can be found at least in the below cited locations of the specification. By way of example, certain embodiments of the present invention are directed to a method of cementing. (*See, e.g.*, Spec ¶ [0023] - [0024].) The method of cementing includes providing a cement composition comprising a hydraulic cement, a set retarder, water, and a particle-size distribution agent that comprises a cationic polymer. (*See, e.g.*, Spec ¶ [0024] - [0028].) The method of cementing further includes permitting the cement composition to remain in a slurry state for at least 24 hours. (*See, e.g.*, Spec ¶ [0038].) The method of cementing further includes activating the cement composition wherein activating the cement

composition comprises adding an activator composition to the cement composition. (*See, e.g.,* Spec ¶ [0033] -[0035].) The method of cementing further includes placing the cement composition in a subterranean formation penetrated by a well bore. (*See, e.g.,* Spec ¶ [0036] - [0037].) The method of cementing further includes permitting the cement composition to set in the subterranean formation. (*See, e.g.,* Spec ¶ [0036] -[0037].)

With regard to aspects of the invention set forth in independent claim 159, discussion of the recited features of claim 1 can be found at least in the below cited locations of the specification. By way of example, certain embodiments of the present invention are directed to a method of cementing. (*See, e.g.,* Spec ¶ [0023] - [0024].) The method of cementing includes providing a cement composition comprising a hydraulic cement, a set retarder, water, and a particle-size distribution agent that comprises a cationic polymer. (*See, e.g.,* Spec ¶ [0024] - [0028].) The method of cementing further includes permitting the cement composition to remain in a slurry state for at least two weeks. (*See, e.g.,* Spec ¶ [0038].) The method of cementing further includes activating the cement composition wherein activating the cement composition comprises adding an activator composition to the cement composition. (*See, e.g.,* Spec ¶ [0033] -[0035].) The method of cementing further includes placing the cement composition in a subterranean formation penetrated by a well bore. (*See, e.g.,* Spec ¶ [0036] -[0037].) The method of cementing further includes permitting the cement composition to set in the subterranean formation. (*See, e.g.,* Spec ¶ [0036] -[0037].)

VII. GROUNDS OF REJECTION TO BE REVIEWED

1. Whether claims 1-12, 14-28, 30-39, 123-134, 136-170, and 172-191 are unpatentable under 35 U.S.C. § 102(a) and §102(b) over U.S. Patent No. 4,393,939 by Smith *et al.* (hereinafter “*Smith*”) or U.S. Patent No. 3,508,407 by Booth (hereinafter “*Booth*”).

2. Whether claims 1-12, 14-28, 30-39, 123-134, 136-170, and 172-191 are unpatentable under 35 U.S.C. § 103(a) over *Smith* or *Booth* alone or in view of U.S. Patent No. 5,588,488 by Vijn *et al.* (hereinafter “*Vijn*”), U.S. Patent No. 6,087,418 by Yamashita *et al.* (hereinafter “*Yamashita*”), U.S. Patent No. 6,089,318 by Laramay *et al.* (hereinafter “*Laramay*”), U.S. Patent No. 4,131,480 by McCurrich *et al.* (hereinafter “*McCurrich*”), or the abstract of a technical article entitled “Effect of mix rheology, admixtures, and salts on physical and mechanical properties of hardened cement pastes” by Scheetz *et al.* (hereinafter “*Scheetz*”).

VI. ARGUMENTS

A. Claims 1-12, 14-28, 30-39, 123-134, 136-170, and 172-191 Are Not Anticipated by Smith or Booth

In the Final Office Action, the Examiner rejected claims 1-12, 14-28, 30-39, 123-134, 136-170, and 172-191 are unpatentable under 35 U.S.C. § 102(a) and §102(b) over *Smith* or *Booth*. Appellants respectfully submit that the rejection based on 35 U.S.C. §102(a) is improper. Further, Appellants respectfully submit that the rejection based on 35 U.S.C. § 102(b) is improper as the Examiner has failed to make a prima facie case of anticipation based on *Smith* or *Booth*.

1. Examiner's Rejection Based on 35 U.S.C. §102(a) Is Improper

A prima facie case is made out under 35 U.S.C. §102(a) if, within 1 year of the filing date, the invention, or an obvious variant thereof, is described in a “printed publication” whose authorship differs in any way from the inventive entity unless it is stated within the

publication itself that the publication is describing the applicant's work. MANUAL OF PATENT EXAMINING PROCEDURE (hereinafter "MPEP") § 2132.01. The Examiner has cited *Smith* and *Booth* as the primary references on which the 35 U.S.C. §102 rejection is based. *Smith* was issued in 1983 and *Booth* was issued in 1970, at which time they both became available for potential use under §102. As neither of these references was published within one year of the filing date of the present application of January 16, 2004, the Examiner has failed to make a prima facie case under 35 U.S.C. §102(a). Appellants respectfully request the Board to reverse the Examiner's rejection of claims 1-12, 14-28, 30-39, 123-134, 136-170, and 172-191 under 35 U.S.C. § 102(a) as being unpatentable over *Smith* or *Booth*.

2. Examiner Has Failed to Make a Prima Facie Case of Anticipation Based on *Smith* or *Booth*

The Examiner has rejected claims 1-12, 14-28, 30-39, 123-134, 136-170, and 172-191 under 35 U.S.C. §102(b) over *Smith* or *Booth*. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." See *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); MPEP § 2131. Appellants respectfully submit that the cited references do not disclose each and every limitation of independent claims 1, 123, and 159 as required for anticipation under 35 U.S.C. § 102(b).

With regard to *Smith*, it has not been shown to disclose the steps of "permitting the cement composition to remain in a slurry prior to the cement composition being activated" or "activating the cement composition wherein activating the cement composition comprises adding an activator composition to the cement composition," as required by Appellants' claims 1, 123 and 159. With respect to *Smith* and *Booth*, the Examiner has stated:

The activator or activating agent reads upon either water (which activates the hydraulic activity of cement) or an accelerator which accelerates and activates the rapid setting of cement. Note that in claim 1 applicants do not specify or define any specific activators and though they may mean accelerator by the use of the term activator, water is the only ingredient which imparts the hydraulic activity to cement and starts the hydraulic reaction for hardening and setting of the cement.

Final Office Action at 3.

Appellants respectfully disagree. The Examiner's argument that *Smith* anticipates claims 1, 123, and 159 is partly based on the improper interpretation of the terms "activator" and "accelerator." The Examiner has improperly stated that the terms "activator" and "accelerator" are synonymous. *See* Final Office Action at 2. Appellants submit that the "activators," as described in the present specification and claims, are substantially similar to what are generally referred to in the art as "accelerators." However, Appellants respectfully assert that one of ordinary skill in the art would recognize that the term "accelerator" is generally used to refer to a particular composition that may be added to a cement composition not comprising a set retarder at the time the composition is added (even if a set retarder should be added later), while the term "activator" is generally used to refer to the same composition when it is added to a cement composition comprising a set retarder. Thus, Appellants use of these terms is consistent with the usage commonly accepted in the art.

There is no indication or any reference in *Smith* that discloses the addition of an activator composition to the cement composition. Further, the Examiner has stated that water acts in "activating" the cement composition. (Final Office Action at 3.) Appellants respectfully disagree because water does not "activate" the Appellants' cement compositions, which already

contain water, in the manner that the present application specifies. The specification of the present application states that the cement composition may be made ready for use by the addition of activator compositions that “generally comprise a mixture of at least one alkali or alkaline earth metal hydroxide, and a trialkanolamine.” (Specification, ¶ [0027]) In addition, water will not activate the cement composition because water is already present in the cement composition as required by the limitation in claims 1, 123, and 159 of “providing a cement composition comprising a hydraulic cement, a set retarder, *water*, and a particle-size distribution-adjusting agent.” (emphasis added). In the Response to the Fourth Office Action, mailed May 4, 2006, Appellants provided data indicating that the addition of water to a cement composition already containing water has been shown to increase thickening time, *e.g.* retard cement setting. (See Appendix B.) Due to the inclusion of water in the cement composition, it should be clear that some other component must be used to activate the cement composition after it has been allowed to remain in a slurry state. As one skilled in the art would recognize, the water already present within the cement composition does not function as an activator. Accordingly, Appellants respectfully assert that *Smith* has not been shown to anticipate Appellants’ independent claims 1, 123 and 159.

With regard to *Booth*, like *Smith*, it has not been shown to disclose a step “wherein activating the cement composition comprises adding an activator composition to the cement composition,” as required by Appellants’ claims 1, 123 and 159. Rather, there is no indication or any reference in *Booth* that discloses the addition of an activator composition to the cement composition. Further, the Examiner has stated that water acts in “activating” the cement composition. (Final Office Action at 3.) As discussed above, Appellants respectfully disagree because water does not “activate” the Appellants’ cement compositions in the manner that the present application specifies. The specification of the present application states that the cement

composition may be made ready for use by the addition of activator compositions that “generally comprise a mixture of at least one alkali or alkaline earth metal hydroxide, and a trialkanolamine.” (Specification, ¶ [0027]) As one skilled in the art would recognize, the water already present within the cement composition does not function as an activator. Accordingly, Appellants respectfully assert that *Booth* has not been shown to anticipate Appellants’ independent claims 1, 123 and 159.

Furthermore, the Examiner has not shown that either *Smith* or *Booth* disclose a step of “permitting the cement composition to remain in a slurry state for a period of time prior to the cement composition being activated” (claim 1), “permitting the cement composition to remain in a slurry state for at least 24 hours” (claim 123), or “permitting the cement composition to remain in a slurry state for at least 2 weeks” (claim 159). Nothing in either of these references discloses or suggests that a cement composition remains in slurry state prior to being activated. Accordingly, Appellants respectfully assert that neither *Smith* nor *Booth* has been shown to anticipate Appellants’ independent claims 1, 123 and 159.

Consequently, for at least the above stated reasons, Appellants respectfully submit that claims 1, 123 and 159 are not anticipated by either *Smith* or *Booth*. Moreover, since “a claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers,” and since claims 2-12, 14-28, 30-39, 124-134, 136-158, 160-170 and 172-191 depend, either directly or indirectly, from claims 1, 123 and 159, these dependent claims are allowable for at least the same reasons. *See* 35 U.S.C. § 112 ¶ 4 (2005). Appellants respectfully request the Board to reverse the Examiner’s rejection of claims 1-12, 14-28, 30-39, 123-134, 136-170, and 172-191 under 35 U.S.C. § 102(b) as being unpatentable over *Smith* or *Booth*.

B. Claims 1-12, 14-28, 30-39, 123-134, 136-170, and 172-191 Are Not Obviated by *Smith* or *Booth* Alone or in View of *Vijn*, *Yamashita*, *Laramay*, *McCurrich*, or *Scheetz*.

Appellants respectfully disagree with these rejections because the Examiner has not established a prima facie case of obviousness, in that the cited references do not disclose, expressly or inherently, each and every claim limitation and there is no teaching or suggestion to combine the references. MPEP § 2143.03 (2005). In order for a combination of references to form the basis for a rejection under § 103(a) the combination of references must teach or suggest all the elements of the claim. *Id.* The Examiner has failed to establish a prima facie case because none of the references cited disclose the elements of “permitting the cement composition to remain in a slurry state prior to the cement composition being activated” or “activating the cement composition wherein activating the cement composition comprises adding an activator composition to the cement composition.” Examiner has relied on the disclosure of water in the references to constitute an activator, which cannot be an activator within the scope of claims 1, 123, or 159.

The Examiner has stated that water acts in “activating” the cement composition. (Final Office Action at 3.) Appellants respectfully disagree because water does not “activate” the Appellants’ cement compositions in the manner that the present application specifies. The specification of the present application states that the cement composition may be made ready for use by the addition of activator compositions that “generally comprise a mixture of at least one alkali or alkaline earth metal hydroxide, and a trialkanolamine.” (Specification, ¶ [0027]) The primary references to which the Examiner cites do not teach or suggest this method of activation. Water will not activate the cement composition because water is already present in the cement composition as required by the limitation in claims 1, 123, and 159 of “providing a cement composition comprising a hydraulic cement, a set retarder, *water*, and a particle-size distribution-

adjusting agent.” (emphasis added). In the Response to the Fourth Office Action, mailed May 4, 2006, Appellants provided data indicating that the addition of water to a cement composition already containing water has been shown to increase thickening time, *e.g.* retard cement setting. (See Appendix B.) Due to the inclusion of water in the cement composition, it should be clear that some other component must be used to activate the cement composition after it has been allowed to remain in a slurry state. As one skilled in the art would recognize, the water already present within the cement composition does not function as an activator. Accordingly, Appellants respectfully assert that neither *Smith* nor Booth discloses “activating the cement composition.”

Furthermore, in the Response to Fourth Office Action, Appellants asked the Examiner to provide evidence that refutes the argument that water does not “activate” a composition. However, the Examiner has yet to provide any evidence that water does, in fact, act as an activator. Appellants have provided evidence that the addition of water does not “activate” a composition. “If applicant adequately traverses the examiner’s assertion of official notice, the examiner must provide documentary evidence in the next Office action if the rejection is to be maintained. *See* 37 C.F.R. 1.104(c)(2). *See also Zurko*, 258 F.3d at 1386, 59 USPQ2d at 1697 (“[T]he Board [or examiner] must point to some concrete evidence in the record in support of these findings” to satisfy the substantial evidence test). The Examiner did not provide any evidence, yet still maintained the rejection based on water as an activator. If the examiner is relying on personal knowledge to support the finding of what is known in the art, the examiner must provide an affidavit or declaration setting forth specific factual statements and explanation to support the finding. *See* 37 C.F.R. 1.104(d)(2).” MPEP 2144.03(C) The Examiner has not shown that adding additional water to a cement composition already containing water would activate the cement composition, which is required by the recitation in the Appellants’ claims.

The Examiner has noted that the secondary references, including *Vijn*, *Yamashita*, *Laramay*, *McCurrich*, and *Scheetz*, were used to show that additives such as retarders, dispersants, and activators or accelerators are conventional additives for cement. See Final Office Action at 5. As such, these references are not used to directly teach the missing elements of “permitting the cement composition to remain in a slurry state prior to the cement composition being activated” or “activating the cement composition wherein activating the cement composition comprises adding an activator composition to the cement composition.” As conventionally used, an accelerator is used to shorten the setting time while a retarder is used to increase the setting time. The opposite uses of each composition teach away from combining the compositions in a single method. Further, the inclusion of references to the individual compositions in a prior art reference does not provide the missing steps of Appellants’ method of cementing. The Examiner’s response to the Appellants’ arguments in the Final Office Action also does not include the missing steps. See Final Office Action at 5. As such, the Examiner has failed to make a prima facie case of obviousness with respect the references cited.

Even if the secondary references were used to teach the missing elements for the rejection under 35 U.S.C. §103(a), the secondary references do not include the missing elements. With respect to *Vijn*, it fails to teach or suggest a method of cementing comprising “permitting the cement composition to remain in slurry state for a period of time *prior* to the cement composition being *activated*.” (emphasis added) Rather, *Vijn* discusses the use of set retarders “to extend the time in which the cement slurry composition can be pumped.” The *Vijn* reference also discusses the ability to retard activated cement compositions for the purpose of preventing “shocks and impacts from subsequent drilling and completion operations carried out in the well” from shattering the cement. See col. 4, lines 24-35 and col. 5, lines 38-59. However, the use of a set retarder in an activated cement does not teach or suggest “permitting the cement composition

to remain in slurry state for a period of time *prior* to the cement composition being *activated*" and there is absolutely no reference to this required element of the independent claims in *Vijn* (emphasis added) Nor can *Yamashita*, *Laramay*, *Scheetz*, or *McCurrich* be used to provide the necessary recitation.

With respect to *Yamashita*, it does not teach or suggest all elements of Appellants' independent claims 1, 123 and 159. *Yamashita* teaches high-early-strength agents and promoters, which teach away from the steps of the claimed invention. Specifically, *Yamashita* discloses adding these compounds to the cement in order to generate high early strength which is opposed to the step of "permitting the cement composition to remain in slurry state for a period of time *prior* to the cement composition being *activated*." Developing a high early strength soon after preparation would prevent the cement composition from remaining in a slurry state for a period of time. As such *Yamashita* does not disclose allowing the cement to remain in a slurry for a period of time prior to activation or activating the cement composition.

Additionally, Appellants' claims recite the step of "activating the cement composition." *Yamashita* discloses high-early-strength agents and promoters in addition to retarders. However, *Yamashita* does not disclose the step of activating a cement composition already containing a set retarder as required by the first element of claims 1, 123, and 159. As such, *Yamashita* does not disclose the activation of a cement composition.

With respect to *Laramay*, it nowhere discloses "activating the cement composition". *Laramay* discloses that an accelerator may be used as an additive but does not discuss any activators. As discussed above, one of ordinary skill in the art would recognize a functional difference in that the term "accelerator" is generally used to refer to a particular composition that is added to a cement composition not comprising a set retarder, while the term "activator" is generally used to refer to the same composition when it is added to a cement

composition comprising a set retarder. As disclosed in *Laramay*, an accelerator may be used with a cement composition to which a retarder may be added. *Laramay* Col. 10, ll. 25-30, 40-49. However, inclusion of a retarder in a cement composition containing an accelerator does not disclose “activating the cement composition.” In addition, *Laramay* does not disclose “permitting the cement composition to remain in slurry state for a period of time *prior* to the cement composition being *activated*.” Rather, *Laramay* only notes that an accelerator or retarder may be used, but fails to mention how they could be used. As such, there is no mention of allowing the slurry to remain in a slurry form prior to being activated.

The Examiner does not rely on either *Scheetz* or *McCurich* for disclosing the elements of “permitting the cement composition to remain in a slurry state prior to the cement composition being activated” or “activating the cement composition wherein activating the cement composition comprises adding an activator composition to the cement composition.” Rather the Examiner relies on *Scheetz* and *McCurich* to teach the addition of sulfonated naphthalene to the cement composition. As such, neither *Scheetz* nor *McCurich* can supply these missing elements for the obviousness rejection.

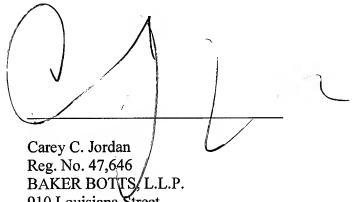
Accordingly, *Smith* or *Booth*, alone or in view of *Vijn*, *Yamashita*, *Laramay*, *Scheetz*, or *McCurich* do not obviate independent claims 1, 123 and 159. Moreover, since a claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers,” and since claims 2-12, 14-28, 30-39, 124-134, 136-158, 160-170 and 172-191 depend, either directly or indirectly, from claims 1, 123 and 159, these dependent claims are allowable for at least the same reasons. See 35 U.S.C. § 112 ¶ 4 (2005). Appellants respectfully request the Board to reverse the Examiner’s rejection of claims 1-12, 14-28, 30-39, 123-134, 136-170, and 172-191 under 35 U.S.C. § 103(a).

VII. SUMMARY

In light of the foregoing, Appellants respectfully request that the final rejection of the pending claims should be reversed and the application be remanded for allowance of the pending claims, or, alternatively, remand the application for further examination if appropriate references can be found by the Examiner.

The Commissioner has been authorized to debit Baker Botts L.L.P.'s Deposit Account No. 02-0383, Order Number 063718.0359, in the amount of \$520.00 under 37 C.F.R. § 41.20(b)(2) for filing an appeal brief. Should the Commissioner deem that any additional fees are due, the Commissioner is authorized to debit Baker Botts L.L.P.'s Deposit Account No. 02-0383, Order Number 063718.0359.

Respectfully submitted,

A large, stylized handwritten signature in black ink, appearing to read 'C. Jordan', is written over a horizontal line.

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Date: February 17, 2009

APPENDIX A: CLAIMS INVOLVED IN APPEAL

1. (Previously Presented) A method of cementing, comprising:
 - providing a cement composition comprising a hydraulic cement, a set retarder, water, and a particle-size distribution-adjusting agent that comprises a cationic polymer;
 - permitting the cement composition to remain in a slurry state for a period of time prior to the cement composition being activated;
 - activating the cement composition wherein activating the cement composition comprises adding an activator composition to the cement composition;
 - placing the cement composition in a subterranean formation penetrated by a well bore; and
 - permitting the cement composition to set therein.
2. (Previously Presented) The method of claim 1 wherein the water is fresh water, salt water, brine, sea water, or a mixture thereof.
3. (Previously Presented) The method of claim 1 wherein the water is present in the cement composition in an amount sufficient to form a pumpable slurry.
4. (Original) The method of claim 3 wherein the water is present in the cement composition in an amount in the range of from about 25% to about 150% by weight of the cement.
5. (Original) The method of claim 1 wherein the hydraulic cement is a Portland cement, pozzolana cement, gypsum cement, high alumina cement, silica cement, or a high alkalinity cement.
6. (Previously Presented) The method of claim 1 wherein providing the cement composition comprises providing a densified cement composition.
7. (Previously Presented) The method of claim 6 wherein providing a densified cement composition comprises adding high-density particles to the cement composition.

8. (Previously Presented) The method of claim 6 wherein providing the densified cement composition comprises reducing the amount of water in the cement composition.
9. (Original) The method of claim 6 wherein the cement composition further comprises a yield stress reducing agent.
10. (Original) The method of claim 1 wherein the set retarder is phosphonic acid or a phosphonic acid derivative.
11. (Original) The method of claim 10 wherein the phosphonic acid derivative is a sodium salt of phosphonic acid.
12. (Original) The method of claim 1 wherein the set retarder is present in the cement composition in an amount in the range of from about 0.1% to about 5% by weight of the cement.
13. (Cancelled)
14. (Previously Presented) The method of claim 1 wherein the activator composition is added in an amount sufficient to enable the cement composition to achieve an effective compressive strength.
15. (Original) The method of claim 14 wherein the activator composition is added in an amount in the range of from about 0.1 to about 5% by weight of the cement.
16. (Original) The method of claim 15 wherein the activator composition comprises a mixture of a trialkanolamine and an alkali or alkaline earth metal hydroxide.
17. (Previously Presented) The method of claim 16 wherein the trialkanolamine is selected from the group consisting of triethanolamine, tripropanolamine, and triisopropanolamine.
18. (Original) The method of claim 16 wherein the alkali or alkaline earth metal hydroxide is selected from the group consisting of sodium hydroxide and potassium hydroxide.

19. (Original) The method of claim 16 wherein the trialkanolamine is present in an amount in the range of from about 0.1% to about 50% by weight of the activator composition.
20. (Original) The method of claim 16 wherein the alkali metal hydroxide is present in an amount in the range of from about 50% to about 99.9% by weight of the activator composition.
21. (Original) The method of claim 18 wherein the alkali metal hydroxide is sodium hydroxide.
22. (Original) The method of claim 16 wherein the activator composition is added to the cement composition in the form of a solution diluted by water.
23. (Original) The method of claim 16 wherein the activator composition is added to the cement composition while the cement composition is in storage.
24. (Original) The method of claim 16 wherein the activator composition is added to the cement composition while the cement composition is being placed in the subterranean formation.
25. (Previously Presented) The method of claim 1 wherein the particle-size distribution-adjusting agent is present in the cement composition in an amount sufficient to adjust the particle-size distribution of the cement composition such that the onset of gelation is forestalled.
26. (Previously Presented) The method of claim 1 wherein the cement composition comprising the particle-size distribution-adjusting agent has a particle-size distribution that is narrower than that of a cement composition lacking the particle-size distribution-adjusting agent.
27. (Original) The method of claim 1 wherein the particle-size distribution-adjusting agent is present in the cement composition in an amount in the range of from about 0.01% to about 4% by weight of the cement.

28. (Previously Presented) The method of claim 1 wherein the particle-size distribution-adjusting agent is a compound that affects the particle-size distribution of the cement such that the rheology of the cement composition remains substantially stable.

29. (Cancelled)

30. (Previously Presented) The method of claim 1 wherein the cationic polymer is selected from the group consisting of cationic polyacrylamides; cationic hydroxyethyl cellulose; poly(dimethyldiallylammonium chloride); and cationic starches.

31. (Original) The method of claim 1 wherein the cement composition further comprises a surfactant, a dispersant, a salt, mica, a formation conditioning agent, a fixed-density weighting agent, vitrified shale, fumed silica, bentonite, fly ash, a fluid loss control additive, an expanding additive, a defoamer, a viscosifier, or a mixture thereof.

32. (Previously Presented) The method of claim 1 further comprising permitting the cement composition to remain in a slurry state for at least 24 hours.

33. (Previously Presented) The method of claim 1 further comprising permitting the cement composition to remain in a slurry state for at least two weeks.

34. (Previously Presented) The method of claim 1 further comprising permitting the cement composition to remain in a slurry state for more than two weeks.

35. (Original) The method of claim 1 wherein the suspension properties of the cement composition are substantially uniform throughout the cement composition.

36. (Original) The method of claim 32 wherein the rheological properties of the cement composition remain substantially constant while the cement composition remains in a slurry state.

37. (Previously Presented) The method of claim 9 wherein the yield stress reducing agent is selected from the group consisting of a sulfonated melamine formaldehyde condensate; a sulfonated naphthalene condensate; and a sulfite adduct of an acetone formaldehyde condensate.

38. (Original) The method of claim 1 wherein the cement composition has a density in the range of from about 4 pounds per gallon to about 25 pounds per gallon.

39. (Previously Presented) The method of claim 1 wherein the cement composition further comprises water, and wherein the water is present in the cement composition in an amount in the range of from about 25% to about 150% by weight of the cement; wherein the set retarder is a phosphonic acid or phosphonic acid derivative; wherein activating the cement composition comprises adding an activator composition to the cement composition; wherein the activator composition comprises a mixture of triethanolamine and an alkali metal hydroxide; and wherein the particle-size distribution-adjusting agent is present in the cement composition in an amount in the range of from about 0.01 % to about 4 % by weight of the cement.

40-122. (Cancelled)

123. (Previously Presented) A method of cementing, comprising:

providing a cement composition comprising a hydraulic cement, a set retarder, water, and a particle-size distribution-adjusting agent that comprises a cationic polymer;

permitting the cement composition to remain in a slurry state for at least 24 hours;

activating the cement composition wherein activating the cement composition comprises adding an activator composition to the cement composition;

placing the cement composition in a subterranean formation penetrated by a well bore; and

permitting the cement composition to set therein.

124. (Previously Presented) The method of claim 123 wherein the water is fresh water, salt water, brine, sea water, or a mixture thereof.
125. (Previously Presented) The method of claim 123 wherein the water is present in the cement composition in an amount sufficient to form a pumpable slurry.
126. (Previously Presented) The method of claim 123 wherein the water is present in the cement composition in an amount in the range of from about 25% to about 150% by weight of the cement.
127. (Previously Presented) The method of claim 123 wherein the hydraulic cement is a Portland cement, pozzolana cement, gypsum cement, high alumina cement, silica cement, or a high alkalinity cement.
128. (Previously Presented) The method of claim 123 wherein the cement composition is a densified cement composition.
129. (Previously Presented) The method of claim 128 wherein the densified cement composition comprises high-density particles.
130. (Previously Presented) The method of claim 128 wherein the cement composition further comprises a yield stress reducing agent.
131. (Previously Presented) The method of claim 130 wherein the yield stress reducing agent is selected from the group consisting of a sulfonated melamine formaldehyde condensate; a sulfonated naphthalene condensate; and a sulfite adduct of an acetone formaldehyde condensate.
132. (Previously Presented) The method of claim 123 wherein the set retarder is phosphonic acid or a phosphonic acid derivative.

133. (Previously Presented) The method of claim 132 wherein the phosphonic acid derivative is a sodium salt of phosphonic acid.
134. (Previously Presented) The method of claim 123 wherein the set retarder is present in the cement composition in an amount in the range of from about 0.1% to about 5% by weight of the cement.
135. (Cancelled)
136. (Previously Presented) The method of claim 123 wherein the activator composition is added in an amount sufficient to enable the cement composition to achieve an effective compressive strength.
137. (Previously Presented) The method of claim 123 wherein the activator composition is added in an amount in the range of from about 0.1 to about 5% by weight of the cement.
138. (Previously Presented) The method of claim 123 wherein the activator composition comprises a mixture of a trialkanolamine and an alkali or alkaline earth metal hydroxide.
139. (Previously Presented) The method of claim 138 wherein the trialkanolamine is selected from the group consisting of triethanolamine, tripropanolamine, and triisopropanolamine.
140. (Previously Presented) The method of claim 138 wherein the alkali or alkaline earth metal hydroxide is selected from the group consisting of sodium hydroxide and potassium hydroxide.
141. (Previously Presented) The method of claim 138 wherein the trialkanolamine is present in an amount in the range of from about 0.1% to about 50% by weight of the activator composition.

142. (Previously Presented) The method of claim 138 wherein the alkali metal hydroxide is present in an amount in the range of from about 50% to about 99.9% by weight of the activator composition.
143. (Previously Presented) The method of claim 138 wherein the alkali metal hydroxide is sodium hydroxide.
144. (Previously Presented) The method of claim 123 wherein the activator composition is added to the cement composition in the form of a solution diluted by water.
145. (Previously Presented) The method of claim 123 wherein the activator composition is added to the cement composition while the cement composition is in storage.
146. (Previously Presented) The method of claim 123 wherein the activator composition is added to the cement composition while the cement composition is being placed in the subterranean formation.
147. (Previously Presented) The method of claim 123 wherein the particle-size distribution-adjusting agent is present in the cement composition in an amount sufficient to adjust the particle-size distribution of the cement composition such that the onset of gelation is forestalled.
148. (Previously Presented) The method of claim 123 wherein the cement composition comprising the particle-size distribution-adjusting agent has a particle-size distribution that is narrower than that of a cement composition lacking the particle-size distribution-adjusting agent.
149. (Previously Presented) The method of claim 123 wherein the particle-size distribution-adjusting agent is present in the cement composition in an amount in the range of from about 0.01% to about 4% by weight of the cement.

150. (Previously Presented) The method of claim 123 wherein the particle-size distribution-adjusting agent is a compound that affects the particle-size distribution of the cement such that the rheology of the cement composition remains substantially stable.
151. (Previously Presented) The method of claim 123 wherein the cationic polymer is selected from the group consisting of cationic polyacrylamides; cationic hydroxyethyl cellulose; poly(dimethyldiallylammonium chloride); and cationic starches.
152. (Previously Presented) The method of claim 123 wherein the cement composition further comprises a surfactant, a dispersant, a salt, mica, a formation conditioning agent, a fixed-density weighting agent, vitrified shale, fumed silica, bentonite, fly ash, a fluid loss control additive, an expanding additive, a defoamer, a viscosifier, or a mixture thereof.
153. (Previously Presented) The method of claim 123 further comprising permitting the cement composition to remain in a slurry state for at least two weeks.
154. (Previously Presented) The method of claim 123 further comprising permitting the cement composition to remain in a slurry state for more than two weeks.
155. (Previously Presented) The method of claim 123 wherein the suspension properties of the cement composition are substantially uniform throughout the cement composition.
156. (Previously Presented) The method of claim 123 wherein the rheological properties of the cement composition remain substantially constant while the cement composition remains in a slurry state.
157. (Previously Presented) The method of claim 123 wherein the cement composition has a density in the range of from about 4 pounds per gallon to about 25 pounds per gallon.

158. (Previously Presented) The method of claim 123 wherein the cement composition further comprises water, and wherein the water is present in the cement composition in an amount in the range of from about 25% to about 150% by weight of the cement; wherein the set retarder is a phosphonic acid or phosphonic acid derivative; wherein activating the cement composition comprises adding an activator composition to the cement composition; wherein the activator composition comprises a mixture of triethanolamine and an alkali metal hydroxide; and wherein the particle-size distribution-adjusting agent is present in the cement composition in an amount in the range of from about 0.01 % to about 4 % by weight of the cement.

159. (Previously Presented) A method of cementing, comprising:

providing a cement composition comprising a hydraulic cement, a set retarder, water, and a particle-size distribution-adjusting agent that comprises a cationic polymer;

permitting the cement composition to remain in a slurry state for at least two weeks;

activating the cement composition wherein activating the cement composition comprises adding an activator composition to the cement composition;

placing the cement composition in a subterranean formation penetrated by a well bore; and

permitting the cement composition to set therein.

160. (Previously Presented) The method of claim 159 wherein the water is fresh water, salt water, brine, sea water, or a mixture thereof.

161. (Previously Presented) The method of claim 159 wherein the water is present in the cement composition in an amount sufficient to form a pumpable slurry.

162. (Previously Presented) The method of claim 159 wherein the water is present in the cement composition in an amount in the range of from about 25% to about 150% by weight of the cement.
163. (Previously Presented) The method of claim 159 wherein the hydraulic cement is a Portland cement, pozzolana cement, gypsum cement, high alumina cement, silica cement, or a high alkalinity cement.
164. (Previously Presented) The method of claim 159 wherein the cement composition is a densified cement composition.
165. (Previously Presented) The method of claim 164 wherein the densified cement composition comprises high-density particles.
166. (Previously Presented) The method of claim 164 wherein the cement composition further comprises a yield stress reducing agent.
167. (Previously Presented) The method of claim 166 wherein the yield stress reducing agent is selected from the group consisting of a sulfonated melamine formaldehyde condensate; a sulfonated naphthalene condensate; and a sulfite adduct of an acetone formaldehyde condensate.
168. (Previously Presented) The method of claim 159 wherein the set retarder is phosphonic acid or a phosphonic acid derivative.
169. (Previously Presented) The method of claim 168 wherein the phosphonic acid derivative is a sodium salt of phosphonic acid.

170. (Previously Presented) The method of claim 159 wherein the set retarder is present in the cement composition in an amount in the range of from about 0.1% to about 5% by weight of the cement.
171. (Cancelled)
172. (Previously Presented) The method of claim 159 wherein the activator composition is added in an amount sufficient to enable the cement composition to achieve an effective compressive strength.
173. (Previously Presented) The method of claim 159 wherein the activator composition is added in an amount in the range of from about 0.1 to about 5% by weight of the cement.
174. (Previously Presented) The method of claim 159 wherein the activator composition comprises a mixture of a trialkanolamine and an alkali or alkaline earth metal hydroxide.
175. (Previously Presented) The method of claim 174 wherein the trialkanolamine is selected from the group consisting of triethanolamine, tripropanolamine, and triisopropanolamine.
176. (Previously Presented) The method of claim 174 wherein the alkali or alkaline earth metal hydroxide is selected from the group consisting of sodium hydroxide and potassium hydroxide.
177. (Previously Presented) The method of claim 174 wherein the trialkanolamine is present in an amount in the range of from about 0.1% to about 50% by weight of the activator composition.
178. (Previously Presented) The method of claim 174 wherein the alkali metal hydroxide is present in an amount in the range of from about 50% to about 99.9% by weight of the activator composition.

179. (Previously Presented) The method of claim 174 wherein the alkali metal hydroxide is sodium hydroxide.
180. (Previously Presented) The method of claim 159 wherein the activator composition is added to the cement composition in the form of a solution diluted by water.
181. (Previously Presented) The method of claim 159 wherein the activator composition is added to the cement composition while the cement composition is in storage.
182. (Previously Presented) The method of claim 159 wherein the activator composition is added to the cement composition while the cement composition is being placed in the subterranean formation.
183. (Previously Presented) The method of claim 159 wherein the particle-size distribution-adjusting agent is present in the cement composition in an amount sufficient to adjust the particle-size distribution of the cement composition such that the onset of gelation is forestalled.
184. (Previously Presented) The method of claim 159 wherein the cement composition comprising the particle-size distribution-adjusting agent has a particle-size distribution that is narrower than that of a cement composition lacking the particle-size distribution-adjusting agent.
185. (Previously Presented) The method of claim 159 wherein the particle-size distribution-adjusting agent is present in the cement composition in an amount in the range of from about 0.01% to about 4% by weight of the cement.
186. (Previously Presented) The method of claim 159 wherein the particle-size distribution-adjusting agent is a compound that affects the particle-size distribution of the cement such that the rheology of the cement composition remains substantially stable.

187. (Previously Presented) The method of claim 159 wherein the cationic polymer is selected from the group consisting of cationic polyacrylamides; cationic hydroxyethyl cellulose; poly(dimethyldiallylammonium chloride); and cationic starches.
188. (Previously Presented) The method of claim 159 wherein the cement composition further comprises a surfactant, a dispersant, a salt, mica, a formation conditioning agent, a fixed-density weighting agent, vitrified shale, fumed silica, bentonite, fly ash, a fluid loss control additive, an expanding additive, a defoamer, a viscosifier, or a mixture thereof.
189. (Previously Presented) The method of claim 159 wherein the suspension properties of the cement composition are substantially uniform throughout the cement composition.
190. (Previously Presented) The method of claim 159 wherein the rheological properties of the cement composition remain substantially constant while the cement composition remains in a slurry state.
191. (Previously Presented) The method of claim 159 wherein the cement composition has a density in the range of from about 4 pounds per gallon to about 25 pounds per gallon.

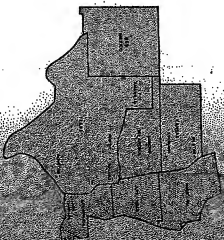
APPENDIX B: EVIDENCE

Trinity Technical Data Book, Table No. IX

(The evidence presented in this table was entered into the record in Appellants'

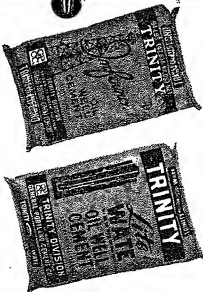
Response to Office Action dated May 5, 2006.)

The Trinity Territory



Trinity Lite-Mix and Trinity Special All-Grades
"H" Oilwell Cements are available through all
major service companies in this area.

TRINITY SULPHATE RESISTANT OIL WELL CEMENTS



TECHNICAL DATA BOOK T-64

TRINITY
PORTLAND CEMENT DIVISION
GENERAL PORTLAND CEMENT COMPANY
DALLAS, FT. WORTH, HOUSTON



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TRINITY SALES OFFICES

DALLAS

1700 Republic National Bank Building
P. O. Box 2698, Dallas, Texas 75221
Telephone: RI 2-8111

HOUSTON

2238 Bank of the Southwest Building
Houston, Texas 77002
Telephone: CA 7-9232

FORT WORTH

1020 Ft. Worth National Bank Building
Fort Worth, Texas 76102
Telephone: ED 5-4555

AMARILLO

East Third and Lakeville
P. O. Box 5486, Amarillo, Texas 79107
Telephone: ~~555-7222~~ DR 1-7247

DA 2-8309

LAKE CHARLES, LA.

P. O. Drawer 67
West Lake, Louisiana 70669
Telephone: 436-5388

In Oklahoma TRINITY LITE-WATE can also be ordered through General Portland Cement Company's Victor Division, Sales Office, 418 Commerce Exchange Building, Oklahoma City, Oklahoma, Telephone CE 2-1606.

Additional technical information on Trinity oil well cements or other Trinity products is available upon request. Write Dallas Sales Office or contact your nearest Trinity representative.



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TRINITY

NATIONAL CEMENT DIVISION

AMERICAN PETROLEUM INSTITUTE

of the Trinity Research Laboratory in Houston, Texas. These data have been checked with field performance and found to be reliable.

All tests were run in accordance with A.P.I. R.P. 10B "Recommended Practice for Testing Oil Well Cements and Cement Additives" (Thirteenth Edition, March, 1964).

COMPATIBILITY

TRINITY INFERNO and TRINITY LITE-WATE have been successfully used with all known commonly used cement retarders, accelerators, fluid loss additives and friction reducers. For special use of any particular additive, consult your service company.

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TRINITY INFERNO CEMENT

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TRINITY INFERNO CEMENT

SPECIFICATIONS

Trinity Inferno meets A.P.I. Specifications for Oil Well Cements, Class D and E (High Sulphate-Resistant Type.)

TYPICAL CHEMICAL ANALYSIS

Oxide	Compound Composition
SiO ₂	22.1% C ₂ S
Al ₂ O ₃	4.5% C ₃ S
Fe ₂ O ₃	5.7% C ₄ A
CaO	62.9% C ₂ AF
SO ₂	1.9% CaSO ₄
MgO	1.4% Free CaO
Loss	1.0% Insoluble Residue. 0.1%

PHYSICAL TESTS

Specific Gravity	3.14
Autoclave Expansion	0.02%
Wagner Surface Area	1420 cm ² /gm
325 Mesh Fineness, % Passing	73.0
Absolute Volume of one cu. ft. or 94 lb. sack 3.6 gal. or 0.48 cu. ft.	



TABLE NO. IX
TRINITY LITE-WATE CEMENT
GENERAL SLURRY PROPERTIES

Slurry Weight and volume are calculated on the basis of Lite-Wate specific gravity of 2.80. Dry volume 75 lbs. per cu. ft. (max). Absolute volume 3.22 gallons or 0.43 cu. ft.

Thickening Times

Percent Water	Slurry Weight #/Gal.	Initial Viscosity Poises	Thickening Time, Hrs: Min. API Casing Cementing Test Schedules			
			Sch. 3 4,000 ft. (103° F)	Sch. 4 6,000 ft. (113° F)	Sch. 5 8,000 ft. (125° F)	Sch. 6 10,000 ft. (144° F)
65	13.06	24	4:45	3:15	2:05	1:07
75	13.18	8	5:35	3:45	2:17	1:20
85	12.77	6	6:10	4:07	2:35	1:30
95	12.44	5	6:52	4:25	3:51	1:42
105	12.14	4	7:42	4:45	3:06	1:50
115	11.89	3	8:20	5:06	3:27	1:58

COMPRESSIVE STRENGTHS

WATER		Slurry Weight #/Gal.	Slurry Yield Cu. Ft. Sack	Compressive Strength psi of 2" Cubes Cured for 24 & 72 Hours at Atmospheric Pressure					
				100° F		120° F		140° F	
				24	72	24	72	24	72
65	5.85	13.66	1.21	1083	2825	3250	3483	3283	3525
75	6.75	13.18	1.33	908	2275	2384	2717	2667	3000
85	7.65	12.77	1.45	631	1800	1450	2017	1775	2108
95	8.55	12.44	1.57	414	1367	1150	1817	1483	1785
105	9.45	12.14	1.69	275	1083	917	1242	1242	1333
115	10.35	11.89	1.81	220	917	675	967	965	1000

APPENDIX C: RELATED CASES

None